Family Matters: Gender Affirmation and the Mental Health of Transgender Youth.

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Abstract

This paper examines the relationship between social transitions, mental health, and family support among transgender youth using data from the United States Transgender Survey. We use retrospective panel data to compare changes in mental health among transgender youth who initiate social transitions compared to those who initiate social transitions a year later. We find that social transitions are associated with a higher risk of suicide attempt and running away from home among transgender youth who live in unsupportive families, whereas supportive family environments mitigate, and in some cases, virtually eliminate these risks. Some of these disparities can be attributed to higher incidences of exposure to gender identity change efforts and limited access to hormone therapy in unsupportive family environments, as compared to supportive ones. These results demonstrate the importance of family support for the mental health of transgender youth at key life stages, and that family support increases access to affirming health care.

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I. Introduction

A rapidly growing body of research indicates that transgender individuals experience a greater burden of mental health conditions such as depression, anxiety, PTSD, suicidality, and substance use disorder. For example, Gonzales and Deal (2022) find that gender minority youth have higher rates of feeling "sad and hopeless" and greater rates of suicidality (including suicide ideation, attempts, and attempts requiring medical treatment). Hughes et al. (2021) find that cohorts of transgender adults are substantially more likely to experience depression, psychoses, and drug use disorder than cisgender peers, and Progovac et al. (2023) demonstrate that even when gender minority populations get minimal recommended health care, they still have poorer mental health outcomes.

A major contributor to these transgender mental health disparities is the relatively greater exposure of transgender youth to interpersonal violence, compared to cisgender peers. Gender minority youth report more bullying at school and online, as well as more frequent peer violence (Gonzales and Deal, 2022). Closely related, transgender adults have a higher prevalence of adverse childhood experiences – especially emotional abuse, physical neglect, and emotional neglect – compared to cisgender LGB people (Schnarrs et al., 2019). This interpersonal violence has severe repercussions: higher levels of violence victimization among gender minority populations partially accounts for elevated suicidality (Progovac et al., 2021), and family abuse is associated with higher likelihood of intimate partner violence (Langenderfer-Magruder et al., 2016). Moreover, students who are bullied at school are likely to feel less connected to their schools, which in turn is associated with worse mental health among transgender youth (Parodi et al., 2022).

Another major contributor to adverse mental health outcomes among transgender youth is structural impediments around public policies and access to health care. In recent years a number of states have institutionalized bias against transgender individuals with, for example, laws that prohibit transgender girls from participating in girls' sports, provisions that exclude gender-affirming care from Medicaid coverage, and explicit bans on the provision of gender-affirming care (Barbee et al., 2022).[1] On the other hand, several states have introduced gender-affirming policies, such as conversion therapy bans that prohibit the practice of gender identity change efforts, as well as gender marker laws that allow people to change their gender on legal documents.

As minors, the health care that transgender youth experience is largely directed by their family. Unsupportive parents and families of transgender youth often encourage or coerce their children into undergoing gender identity change efforts, while supportive parents may

[1] The first state to ban gender-affirming care was Arkansas in 2021, which is prior to our study period.

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assist their transgender youth in accessing gender-affirming care (Kidd et al., 2021; Campbell and Rodgers, 2023). Adolescents do not have the legal authority to make their own medical decisions, so they often have no choice but to attend the treatment that families prescribe (Byne, 2016). Several studies have demonstrated that gender identity change efforts have deleterious mental health effects and that undergoing such practices are associated with significantly higher rates of suicide attempt and completion (Campbell and Rodgers, 2023; Harrell, 2022; Blosnich et al., 2020; del Río-González et al., 2021).

The American Psychological Association, the Endocrine Society, the American Academy of Pediatrics, the Substance Abuse and Mental Health Services Association, and the American Psychiatric Association have all formally endorsed gender-affirming care as the only acceptable approach to therapeutic care for transgender individuals (Bazelon, 2022). Gender-affirming care aims to diminish the primary and secondary sex characteristics of sex assigned at birth, and to establish congruence between primary and secondary sex characteristics with one's gender identity, through the initiation of services such as gender-affirming hormone therapy, vocal therapy, and/or surgery.[2] Note that these medical transition steps are not nearly as common as steps in the social transition such as name change, appearance change (such as clothing and hair), and legal gender marker change (Breslow et al., 2021). Numerous studies have demonstrated that gender-affirming care is associated with significant improvements in mental health and reductions in suicidal behavior (Mann et al., 2022; Campbell et al., 2023; Murad et al., 2010; Dhejne et al., 2016; Bränström and Pachankis, 2020).

Unfortunately, family responses and support of transgender children varies widely, which is hugely problematic given that a lack of family support can lead to depression and anxiety, running away, homelessness, substance abuse, and suicidality (Ryan et al., 2010; Pariseau et al., 2019; Kosciw et al., 2020). Lack of family acceptance and support directly contributes to gender minority stress and dysphoria, especially among adolescents as they transition along the major milestones of coming out and living as transgender individuals (Katz-Wise et al., 2017a; Jessen et al., 2021). Families may question if the child is actually transgender, express concern about what future romantic relationships would look like, and anticipate physical and emotional harm (Katz-Wise et al., 2017b). Yet social transition is common, and establishing gender congruence has positive outcomes in adulthood (*e.g.* Mann, 2021; Restar et al., 2020). Less is known about establishing gender congruence in adolescence.[3]

[2]Puberty blockers are also considered a form of gender-affirming care, however, during our study period puberty blockers were much more rarely prescribed. Turban et al. (2020) find that only 2.5% of USTS respondents were ever given puberty suppression medication. Given the small sample sizes it is difficult to assess the association between social transitions and puberty blockers, especially when disaggregating by family support. As such, we instead focus on gender-affirming hormone therapy.

[3]Two notable exceptions are Turban et al. (2021) and Miller et al. (2023). The former shows that adolescent (compared to adult) social transition is associated with worse mental health in adulthood, and this relationship

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Although scholars and practitioners generally agree that family support is critical for preventing transgender youth from experiencing negative outcomes, there is little empirical evidence on how the risks of negative outcomes change during the stages of social transition and the extent to which family support mediates this relationship. We aim to fill this knowledge gap by examining the relationship between social transitions and mental health among transgender youth, and how that relationship varies depending on levels of family support. Given that the healthcare that transgender youth receive is largely directed by their families and that family support is a key factor in family decisions regarding the health care that transgender youth receive, we also explore social transitions and the health care of transgender youth and the mediating role of family support.

To explore the relationship between social transitions, mental health, and family support, we construct a retrospective panel of transgender youth utilizing the 2015 United States Transgender Survey (USTS). The USTS questionnaire provides a wealth of data on key life events, such as suicide attempts, running away, exposure to gender identity change efforts, and the initiation of gender-affirming hormone therapy. We also capture key steps in social transitions, including the realization that one's gender was different, self-identification as transgender, the disclosure of transgender status, and living full-time as one's gender identity. Furthermore, the data includes the age at which these events occurred, enabling us to use an event study design to estimate the effect of social transitions on mental health by family support group (adverse, neutral, or supportive). This approach compares changes in mental health among transgender youth who initiate social transitions compared to those who initiate social transitions a year later within each family support group.

We find that social transitions are associated with a higher risk of suicide attempt and running away from home among transgender youth who live in unsupportive families, whereas supportive family environments mitigate, and in some cases virtually eliminate, these risks. Some of these disparities can be attributed to higher incidences of exposure to gender identity change efforts, and to limited access to hormone therapy in unsupportive family environments, as compared to supportive ones. These results provide new evidence on the welfare outcomes associated with social transition milestones and how family support mediates this relationship.

is mediated by K-12 school harassment. The latter shows that show that social transition is unassociated with suicidality, but this is driven by family support acting as a buffer. While these findings are important, concerns about selection bias in the descriptive approach limit the plausibility of the estimates.

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II. Data and Methodology

II.A. United States Transgender Survey

Our analysis utilizes the 2015 wave of the USTS , the largest survey of transgender people ever collected with 27,715 respondents from across the United States. It documents the lives and experiences of trans individuals, with detailed information on a range of indicators, including education, employment, race, family life, health status, and social milestones. The sample is categorized into three groups: "supportive family," "neutral family," and "adverse family." Respondents in the supportive group self-report having a supportive family when they grew up, report at least one supportive behavior, and do not report any rejection behaviors. Respondents in the adverse group self-report having an unsupportive family when they grew up, and report at least one rejection behavior (such as not using their name). The neutral category comprises all other respondents. When drawing comparisons, we will also use the term "unsupportive family" as shorthand for the average outcome of the neutral family and adverse family groups. One quarter of all survey respondents said their family was not aware of them being transgender, so they were not asked the questions used for these categories. These respondents were omitted from the sample.[4]

The analysis focuses on four outcomes, two of which are indicators of mental health (suicide attempts and running away) and two of which are indicators of exposure to healthcare (gender identity change efforts and gender-affirming care). We consider gender identity change efforts as a negative life event and gender-affirming care a positive life event. We also focus on four social transitioning stages: ever feeling one's gender was different, ever thinking of oneself as transgender, ever telling another that they are transgender, and ever living full-time as the gender of their gender identity. On average these events occur in chronological order, starting with feeling that one's gender was different.

For additional information on how we construct the retrospective panels or on the retrospective questions on the USTS, such as the exact wording or order of questions, see Appendix B of Campbell and Rodgers (2023), which is publicly available here.

II.B. Empirical methodology

To assess the effects of social transitions on the mental health and healthcare utilization of transgender youth, we employ an event study methodology that leverages variation in the timing of transition milestones. Our approach compares changes in major life events

[4]To initiate gender-affirming care, transgender youth often need parental consent (Puckett et al., 2018). In addition, for parents to initiate their transgender youth in gender identity change efforts, they need to be aware of non-cisgender identities.

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(attempting suicide, running away, being exposed to gender identity change efforts, and starting gender-affirming care) among transgender adolescents who initiate social transitions compared to those who initiate social transitions a year later. This empirical design relies on the key assumption that the initiation age of social transition milestones is independent of other factors that may also influence the likelihood of suicide attempts or running away among transgender youth. To bolster this assumption, we first restrict the control group to individuals who successively underwent the social transitioning steps, and we then apply data-driven weights that emphasize control units with similar mental health outcomes as the treated group over the five years preceding the social transition initiation, as detailed below.

To conduct our analysis, we construct a retrospective panel using the 2015 USTS. Our focus is specifically on individuals under the age of 18, so we exclude any life events occurring during adulthood from our sample. To ensure meaningful comparisons, we create a "stack" of cohorts based on the age at which each social transition step was initiated.

Each cohort represents a specific age group when initiating a particular social transition step. The treated group within each cohort consists of respondents who reported initiating the step at the same age, while the corresponding control group comprises individuals who reported initiating the step one year later. Although restricting the control group in this manner offers various advantages, such as ensuring appropriate comparisons, it does come at the cost of a smaller sample size. To address this, we allow individuals within each cohort to be born in different calendar years (although they are the same age relative to the timing of the event). To account for this, we include the age by calendar year fixed effects in our regression specification. Cohorts with fewer than fifty control units are excluded from the analysis, as are cohorts under age four.

Within each cohort, we apply Arkhangelsky et al. (2021) synthetic unit weights to balance the trends in the outcome between the treated and control individuals over the five years before each social transition step. We also align the event time with the age of the treated group at the time of first exposure. This means that event-time zero always represents the age in which the social transition step was initiated. By implementing this approach, we ensure robustness in the event study estimates within each cohort, addressing both misspecification (Arkhangelsky et al., 2021) and potential bias arising from using already-treated units as controls (Goodman-Bacon, 2021).

We efficiently aggregate the within-cohort estimates using a stacked regression with dynamic treatment effects and estimate a separate regression for each family support group. As is standard, we test for selection bias by allowing the trends in outcome to deviate between treated and control individuals for five years prior to the social transition step of interest.

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The baseline specification is:

$$Y_{c,i,t} = \mu + \sum_{k=-5}^{0} \beta_k D_{k,c,i,t} + X'_{c,i,t}\kappa + \alpha_{c,i} + \delta_{c,y,t} + \epsilon_{c,i,t} \tag{1}$$

where Y denotes an indicator for person i of cohort c ever attempting suicide (or running away, being exposed to gender identity change efforts, or initiating gender-affirming care) as of event-time t, D_k are leads and lags of an indicator variable for the particular social transition step under observation, X is a vector of cohort-specific controls for other social transition steps in case they are concurrent, $\alpha_{c,i}$ are cohort-specific individual fixed effects, $\delta_{c,y,t}$ are cohort-specific age-calendar year fixed effects, and $\epsilon_{c,i,t}$ is the error term. The regression is weighted by the cohort-specific synthetic unit weights. Standard errors are clustered at the individual level, the level at which the treatment occurs. The main identifying assumption is parallel trends in the outcome. In Appendix A, we document evidence for this descriptively, while our event study results allow a more detailed visual test for pre-trends that account for covariates.

To assess the overall impact of the social transition effect, we calculate a weighted average of the regression estimates for each specific family support group. The weights correspond to the proportion of respondents in the groups, as follows:

$$\text{Overall Effect} = \frac{N^{Support} * \beta_0^{Support} + N^{Neutral} * \beta_0^{Neutral} + N^{Adverse} * \beta_0^{Adverse}}{N^{Support} + N^{Neutral} + N^{Adverse}} \tag{2}$$

where N denotes the sample size of the family support group. Next, we estimate the difference in the social transition effect between children from supportive families and those from unsupportive families as follows:

$$\text{Difference} = \beta_0^{Support} - \frac{N^{Neutral} * \beta_0^{Neutral} + N^{Adverse} * \beta_0^{Adverse}}{N^{Neutral} + N^{Adverse}} \tag{3}$$

To estimate the standard errors, we stack the individual datasets from the family support groups and estimate a simultaneous (co)variance matrix. This is achieved by conducting a single regression with all the variables on the right-hand side of Equation 1 interacted with the family support group. Standard errors are again clustered by individual.

II.C. Limitations

The proportion of transgender individuals that have attempted suicide increases with age, and some social transitions (such as first telling someone else that one is transgender and first living full time as identified gender) are often experienced later in life. One limitation of our

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study is that we are only able to identify the age of first suicide attempt, thus the proportion of the sample that could in theory switch from zero to one in our outcome variable becomes much smaller for social transitions experienced later in life – for example, around 38% of transgender individuals have already attempted suicide at least once prior to first living full time as one's gender identity. Additionally, our analysis may be subject to recall bias, though we expect small impacts on our estimates as the social transition steps and major life events assessed are often of very high importance to an individual's identity development. Finally, USTS was collected via a community-driven sampling method. Only 2% of the total USTS sample reported living in institutional settings (such as in shelters, transitional housing, military barrack, or nursing homes) despite the fact that 22% of transgender youth reported homelessness in similar population datasets (Deal et al., 2023). Our estimates therefore may be biased towards the null with a more stably housed, higher socioeconomic sample.

III. The Effect of Social Transitions on the Mental Health of Transgender Youth

III.A. The timing of first suicide attempts and other key life events

As is well known, transgender youth are significantly more likely than cisgender youth to attempt suicide or run away from home (e.g. James et al., 2016). However, the magnitude of these disparities depends on the family environment, as does the timing of the first occurrence. Figure 1a illustrates this relationship, presenting descriptive trends for the share of individuals who have attempted suicide at least once, disaggregated by age and family support (supportive, neutral, and adverse families), coupled with comparable estimates for cisgender youth from Nock et al. (2013).

Transgender individuals who grew up in adverse families had a considerably higher likelihood of attempting suicide compared to those in neutral or supportive family environments, and this disparity intensifies throughout adolescence, with noticeable differences emerging as early as age four. By the age of 18, the share of transgender individuals that had attempted suicide at least once was 41.5% for those from adverse families, 32.8% for those from neutral families, and 22.5% for those from supportive families.[5] Unfortunately, even with supportive family environments, transgender youth still face significantly higher rates of suicide attempt

[5] Appendix A provides figures over a longer age frame (up to age 30). From age 18 onwards the proportion of transgender individuals that have attempted suicide at least once remains relatively flat. However, the risk of suicide continues to remain far higher for transgender individuals who grew up in adverse and even in neutral family environments compared to individuals who grew up in supportive environments.

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compared to cisgender individuals (5.2% by age 18). While these findings emphasize the importance of family support in mitigating suicidality among transgender youth, they also indicate that it cannot eliminate the disparity.

Figure 1 also provides similar figures for running away from home and other key life events, including the initiation of hormone therapy and initiation of gender identity change efforts. The differences observed are striking, underscoring the substantial impact of family support on the experiences of transgender youth. For example, by the age of 18, only approximately 2% of transgender youth from supportive families have run away from home at least once, in contrast to around 8% of those from neutrally supportive families and nearly 15% from unsupportive families. Moreover, the timing of other important life events also shows variations based on family support. Compared to transgender youth in unsupportive families, those from supportive families are significantly less likely to undergo efforts to change their gender identity and more likely to initiate hormone therapy.[6]

III.B. The impact of social transitions on first running away from home.

To test how social transitions influence the wellbeing of transgender youth, we first focus on the risk of running away from home. Given that prior work has documented that running away from home is associated with an increase in the subsequent risk of illicit drug use, homelessness, risky sexual behaviors, dropping out of school, criminal activity, and depressive symptoms (Kaufman and Widom, 1999; Tucker et al., 2011; Rice et al., 2013; Aratani and Cooper, 2015) we view this as an important indicator of poor mental health or wellbeing, in line with Campbell and Rodgers (2023).

When averaging across the three family support groups, our event study estimates provide compelling evidence that social transitions pose a risk for running away from home overall, as demonstrated in Figure 2 and Appendix Table A.1. However, there is one notable exception. After first feeling that one's gender is different, there is no significant change in the likelihood of running away from home for the first time, irrespective of the level of family support. In contrast, the other three social transition stages, namely first identifying as transgender, disclosing transgender status, and living full-time as their gender identity, are all significantly associated with an increased likelihood of running away from home for transgender youth.

These estimates suggest that social transitions often carry an elevated risk of transgender youth running away from home. However, a supportive family environment virtually eliminates this risk for the typically earlier social transition events, such as identifying as transgender

[6]Interestingly, figures provided in Appendix A show that transgender youth in supportive family environments tend to initiate social transitions at relatively later ages, including the first recognition of their gender being different, the initial identification as transgender, and the first disclosure of their transgender identity to someone else.

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and disclosing transgender status. In these instances, the estimates not only lack statistical significance but are also precise, dismissing any meaningful changes in the likelihood of running away. For instance, the 95% confidence interval for disclosing transgender status rules out any changes above half a percentage point. Concerning the later outcome of living full-time as one's gender identity, although the estimate is less precise due to a smaller sample size, it also indicates that supportive family environments significantly mitigate the heightened risk of running away from home.

Unsupportive family environments exacerbate the risk of running away for all social transition events, although first feeling that one's gender is different is not statistically significant. Moreover, the impact is most pronounced among transgender youth in adverse family environments; the act of recognizing oneself as transgender for the first time is associated with a substantial 0.9 percentage point increase (or 150% relative to the baseline), disclosing one's transgender status to others is linked to a notable 1.6 percentage point increase (or 72.7% relative to the baseline), and living full-time as one's gender identity is associated with a significant 5.3 percentage point increase (or 69.7% relative to the baseline) in the likelihood of running away from home for the first time.

These results have two significant implications. First, they highlight the critical role of family support in maintaining ongoing family contact and reducing the likelihood of transgender youth leaving their homes during social transitions. Family support, in turn, will likely be related to reductions in transgender youth homelessness (Saewyc, 2011). Second, when faced with unsupportive families, transgender youth who experience social transitions are more likely to run away from home. Taken together, these findings underscore the crucial role that family support plays in the well-being of transgender youth during social transitions.

III.C. The impact of social transitions on first attempting suicide.

Results presented in Figure 3 and Appendix Table A.2 explore an alternative measure of transgender youth wellbeing, suicidality. Specifically, the results indicate a positive association between suicide attempts and social transitions. For instance, feeling that one's gender differs from the one assigned at birth is associated with a 0.9 percentage point increase in the probability of having attempted suicide at least once, which is a 25% increase relative to the baseline mean of 3.5% (Panel A). Additionally, there is a 1 percentage point increase in first suicide attempts among transgender youth after first identifying as transgender, compared to those who do so one year later, representing a 10.9% increase relative to the pretreatment mean of 9.2% (Panel B). However, social transitions that typically occur at a later age, such as disclosing one's transgender identity to others and living full-time as one's gender identity, do not exhibit a statistically significant association with first suicide attempts when averaging

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across all family support groups (Panel C and Panel D).

The risks associated with social transition events vary widely across family support groups, as depicted in Figure 3, highlighting the potential for misleading inferences when averaging over these groups. For instance, in the year that individuals first identify as transgender, there is a significant increase in the probability of having attempted suicide at least once among transgender individuals with adverse families (1.75 percentage points or 14.5%) and neutral families (1.4 percentage points or 15.2%). For transgender youth with supportive families, this relationship is small and precise; the 95% confidence interval excludes increases beyond 0.6 percentage points. A similar pattern is observed for first feeling one's gender was different. These estimates suggest that family environments act as protective factors, fully mitigating the association between social transitions and increased suicide attempts.

A nuanced picture emerges when examining the timing of disclosing one's transgender identity to others (Panel C) and living full-time as one's gender identity (Panel D). In both cases, the coefficients for transgender individuals with supportive families are small, positive, and statistically insignificant, indicating no significant relationship between these social transitions and first suicide attempt. Similarly, transgender individuals with neutral families exhibit coefficients that are statistically indistinguishable from zero, although notably, they are negative in Panel D. In stark contrast, for transgender individuals with adverse families, the coefficients are negative and statistically significant (-6.7 percentage points or 12.2%). This suggests that living as one's gender identity is associated with a reduction in the likelihood of first attempting suicide, but only among individuals in adverse families. This counterintuitive result is likely related to the sharp increase in running away found in Section III.2 for individuals with adverse families in particular. One potential, yet dismal, interpretation of this result is the mental health benefits of leaving an adverse family environment may outweigh the substantial costs of running away from home.

IV. Why Do Supportive Families Mitigate the Risks of Social Transitions?

IV.A. Exposure to gender identity change efforts.

We next explore whether social transitions (which likely increase the probability that parents are aware of a non-cisgender identity) are associated with the timing of initial exposure to gender identity change efforts (also known as 'conversion therapy' or 'reparative therapy')

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and if this varies across family supportiveness.[7]

Our findings indicate that the probability of encountering gender identity change efforts tends to rise following social transitions, and this association is more pronounced in unsupportive family environments compared to supportive ones, as evidenced in Figure 5 and Appendix Table A.3. For instance, upon disclosing one's transgender identity to others, there was a significant 7.3 percentage point increase in gender identity change efforts among individuals from adverse family environments. In contrast, individuals from supportive family environments experienced a significantly smaller increase of 1.4 percentage points. Given the compelling evidence that gender identity change efforts adversely impact mental health outcomes (Campbell and Rodgers, 2023), it is plausible that the observed patterns regarding these efforts contribute to the main conclusions outlined in the previous section. Specifically, they support the notion that family support plays a moderating role in the relationship between social transitions and suicidal behavior as well as instances of running away from home among transgender youth.

IV.B. Initiation of gender-affirming care.

Differences in access to gender-affirming care may contribute to the varying impact of social transitions on the mental health of transgender youth observed among different family support groups, as indicated in Section III. Transgender youth in supportive family environments have greater access to gender-affirming hormone therapy immediately after disclosing their transgender status or living fulltime as their gender identity, whereas transgender youth in adverse families do not experience any meaningful change in hormone therapy usage (see Figure 4 and Appendix Table A.4). For example, after living full-time as their gender identity, transgender youth with supportive families exhibited a notable 6.2 percentage point increase in hormone therapy usage. Conversely, those with adverse family environments experienced a precise decrease of 0.17 percentage points, with the 95% confidence interval excluding any increase above 1 percentage point. We interpret this stark disparity as a consequence of differential access to, rather than desire for, gender-affirming hormone therapy. This interpretation is evidenced by the transgender sample from adverse family environments utilizing hormone therapy at a similar rate as those from supportive families by the age of 28, as shown in Appendix Figure A.1d. These results likely contribute to the main findings, as the positive impact of gender-affirming care on mental health is likely a clear pathway in

[7]Parents may decide to initiate sexual orientation or gender identity change efforts even without youth confirming that they are transgender or gender non-binary. As such, while telling others that one is transgender is the best proxy for parental awareness, parents may decide to initiate even without being told. Hence other social transitions may also be related to initiation of gender identity change efforts, and in turn, increases in suicidal behavior.

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which supportive families moderate the relationship between social transitions and mental health (Mann et al., 2022).[8]

V. Conclusion

This study has shown that transgender youth have a high risk of attempting suicide and running away, and these risks tend to get larger as youth undergo social transitions. A supportive family environment is associated with much lower risk overall for attempting suicide and running away, and it effectively eliminates the increased risk for these negative life events at each social transition.

This new evidence on welfare outcomes associated with social transitions helps to inform policy discussions on transgender health and wellbeing. Our study is consistent with a growing evidence base indicating that protective policies for transgender youth have beneficial effects for their mental health. In particular, comprehensive protective state policies for gender minority populations reduce frequent mental distress (Gonzales et al., 2022), just as prohibiting categorical bans on all transgender healthcare leads to a substantial reduction in suicide (McDowell et al., 2020). Going beyond gender-affirming care, patients with affirming providers who treat LGBTQ+ patients with dignity and respect have better management of chronic mental health conditions and greater receipt of preventive services recommended by the US Preventive Task Force (McKay et al., 2023).

Results from our study underpin the importance of family support for the mental health of transgender youth at key life stages and for them to access the care that they need (Coleman et al., 2012). Our results indicate that family-support-based interventions will likely be effective in reducing the mental health burden and high levels of suicidality and homelessness of transgender youth (Malpas et al., 2022; Parker et al., 2018). Not only do family members play an important role in supporting positive development among transgender youth, households may have larger effects on the well-being of transgender youth than societal and structural factors (Brown et al., 2020).

Gender presentation and expression are highly important in identity development among transgender individuals and for an affirming practice (Kuper et al., 2018; Pullen Sansfaçon

[8]Gaining access to gender affirming care requires a gender dysphoria diagnosis. As such, first feeling that one's gender is different and first self-identifying as transgender should have no bearing on the initiation of gender-affirming hormone replacement therapy, given that there are institutional barriers to receiving a gender dysphoria diagnosis. Hence, event study estimates of these transitions on gender affirming care may be seen as falsification tests. Our findings pass these tests, as they consistently indicate negligible changes in hormone therapy usage for both transitions across all three groups. In fact, the confidence intervals consistently exclude any changes beyond 0.1 percentage points.

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et al., 2020), which in turn are positively associated with mental health (Chodzen et al., 2019). This underscores the need for social services and community resources to establish supportive relationships between transgender children and their parents. These efforts likely will involve increasing the capacity of healthcare providers, religious counselors, and other community leaders to provide gender-affirmative approaches in their practices and institutional settings. The urgency of these kinds of interventions has increased as anti-transgender policies (especially focused on transgender youth) are being passed across the US and around the globe.

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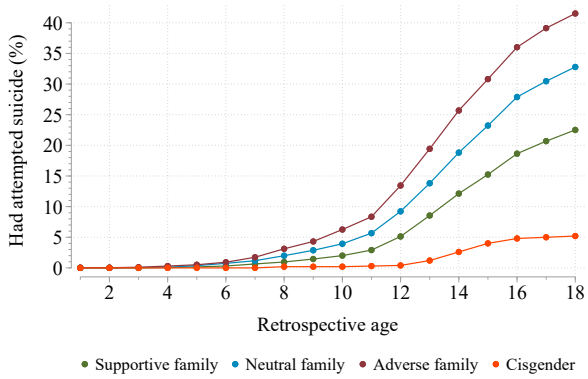
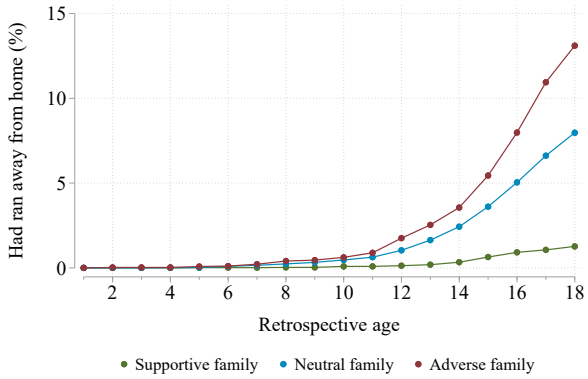
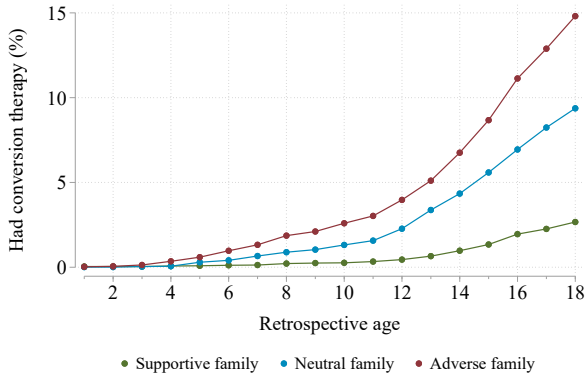
Figure 1: Share of Sample who Reported Life Events Directly Related to Mental Health by Retrospective Age.



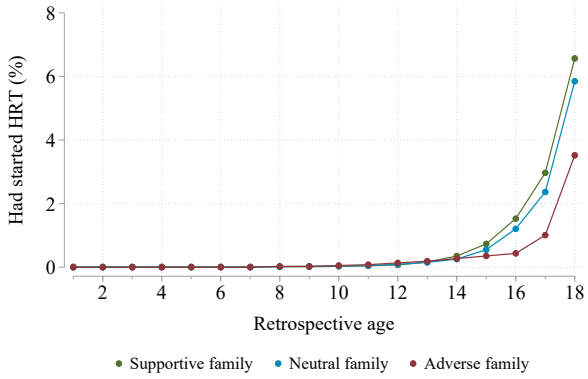
(a) First attempted suicide



(b) First ran away from home



(c) First exposed to gender identity change efforts



(d) First started hormone replacement therapy (HRT)

Notes: Cisgender attempted suicide values from Nock (2013) https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3886236/

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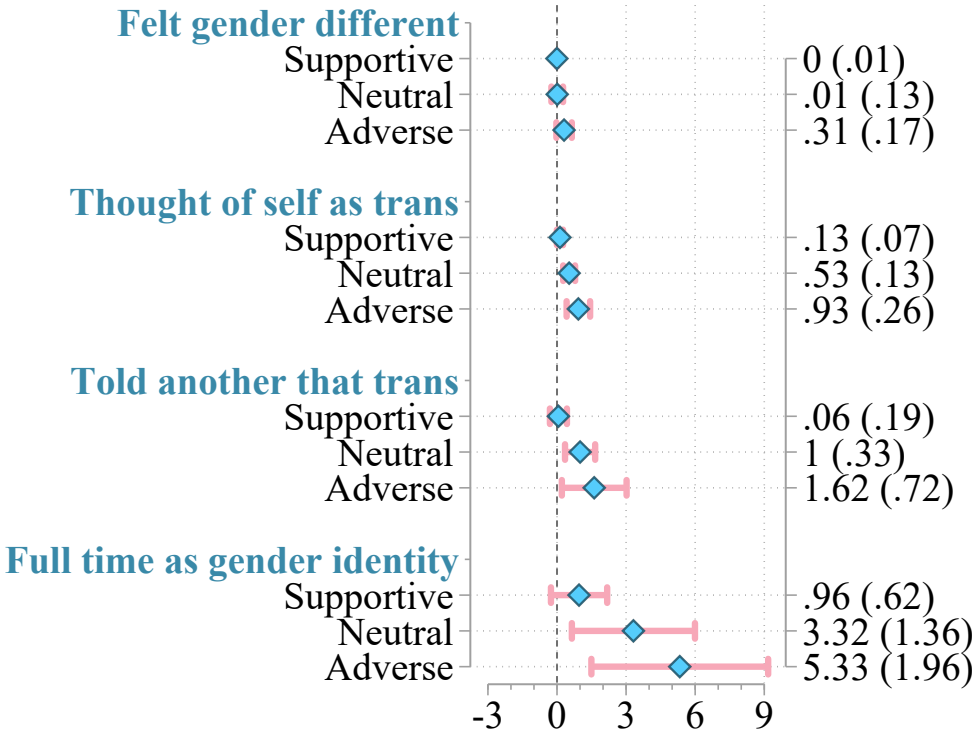
Figure 2: Impact of Social Transitions on the Risk of Running Away for Transgender Youth by Family Support Group



Notes: This figure depicts the baseline event study estimate for the one-year effect of respective social transition milestones (labeled in blue) on the probability of running away by family support group. The blue diamonds are the point estimates. The pink bars are the 95% confidence interval based on standard errors that are clustered by individual. Synthetic unit weights are applied. Point estimates and standard errors, in parentheses, are reported on the second y-axis. All regressions include cohort-individual and cohort-age-calendar year fixed effects, along with cohort-specific controls for the other three social transition steps in case they are concurrent.

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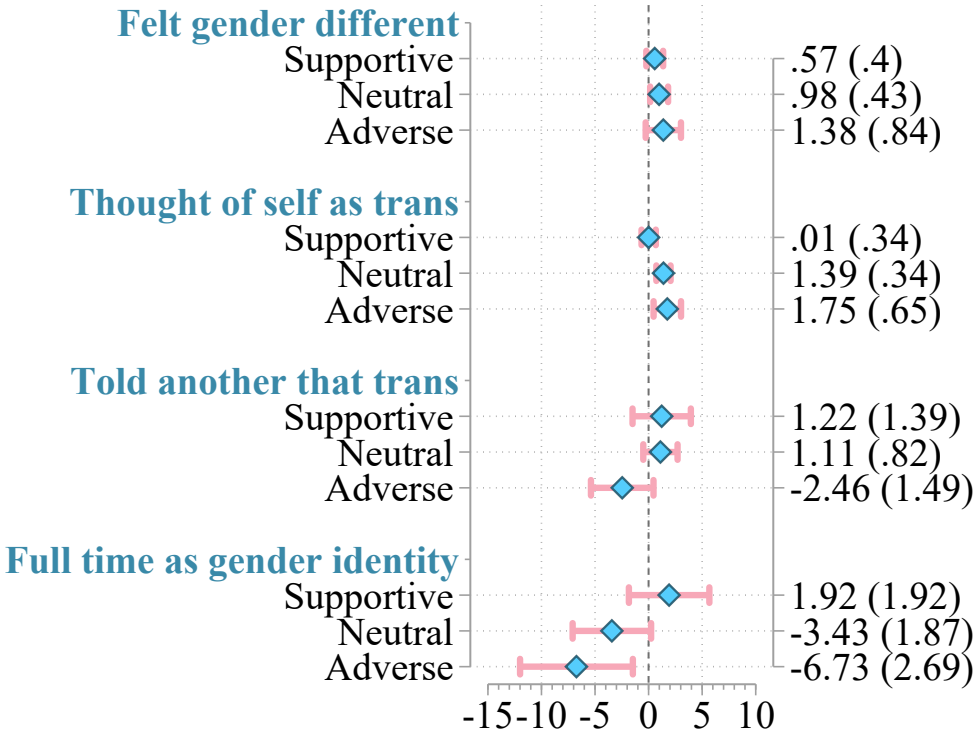
Figure 3: Impact of Social Transitions on the Risk of Attempting Suicide for Transgender Youth by Family Support Group



Notes: This figure depicts the baseline event study estimate for the one-year effect of respective social transition milestones (labeled in blue) on the probability of attempting suicide. The blue diamonds are the point estimates. The pink bars are the 95% confidence interval based on standard errors that are clustered by individual. Synthetic unit weights are applied. Point estimates and standard errors, in parentheses, are reported on the second y-axis. All regressions include cohort-individual and cohort-age-calendar year fixed effects, along with cohort-specific controls for the other three social transition steps in case they are concurrent.

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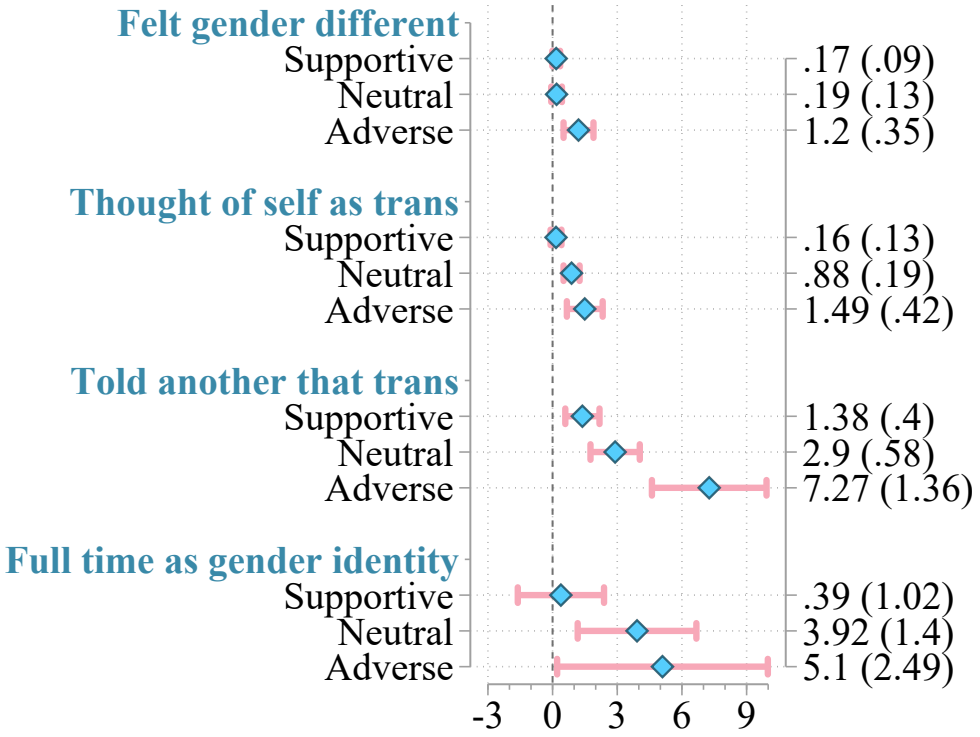
Figure 4: Impact of Social Transitions on the Probability of Gender Identity Change Efforts for Transgender Youth by Family Support Group



Notes: This figure depicts the baseline event study estimate for the one-year effect of respective social transition milestones (labeled in blue) on the probability of having gender identity change efforts. The blue diamonds are the point estimates. The pink bars are the 95% confidence interval based on standard errors that are clustered by individual. Synthetic unit weights are applied. Point estimates and standard errors, in parentheses, are reported on the second y-axis. All regressions include cohort-individual and cohort-age-calendar year fixed effects, along with cohort-specific controls for the other three social transition steps in case they are concurrent.

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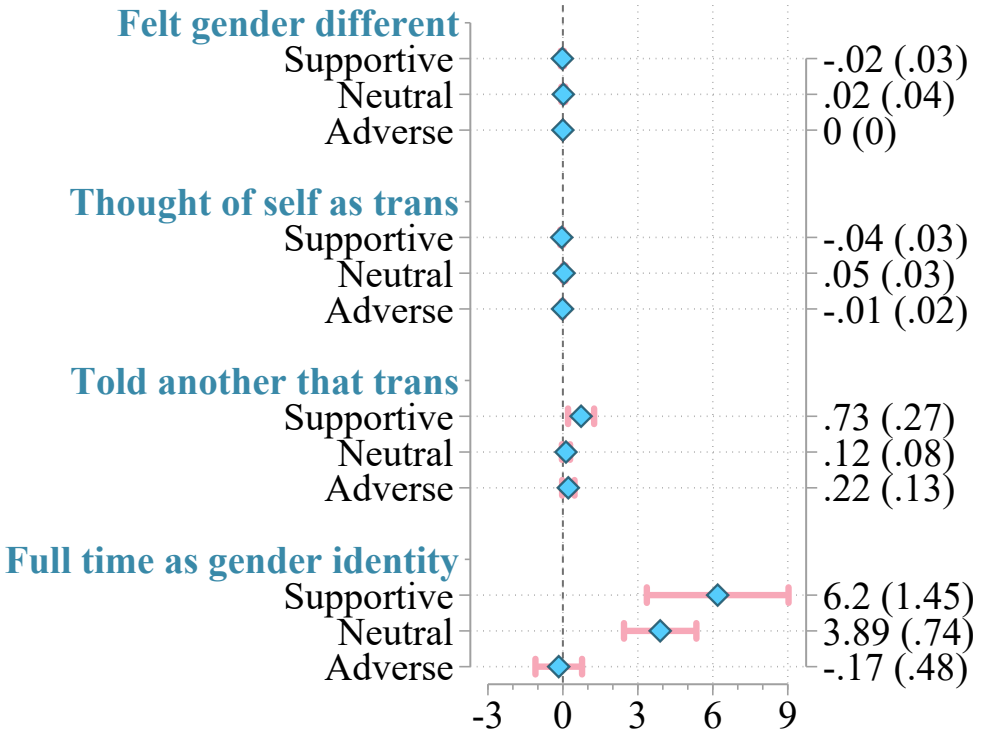
Figure 5: Impact of Social Transitions on the Probability of Hormone Therapy for Transgender Youth by Family Support Group



Notes: This figure depicts the baseline event study estimate for the one-year effect of respective social transition milestones (labeled in blue) on the probability of having hormone therapy. The blue diamonds are the point estimates. The pink bars are the 95% confidence interval based on standard errors that are clustered by individual. Synthetic unit weights are applied. Point estimates and standard errors, in parentheses, are reported on the second y-axis. All regressions include cohort-individual and cohort-age-calendar year fixed effects, along with cohort-specific controls for the other three social transition steps in case they are concurrent.

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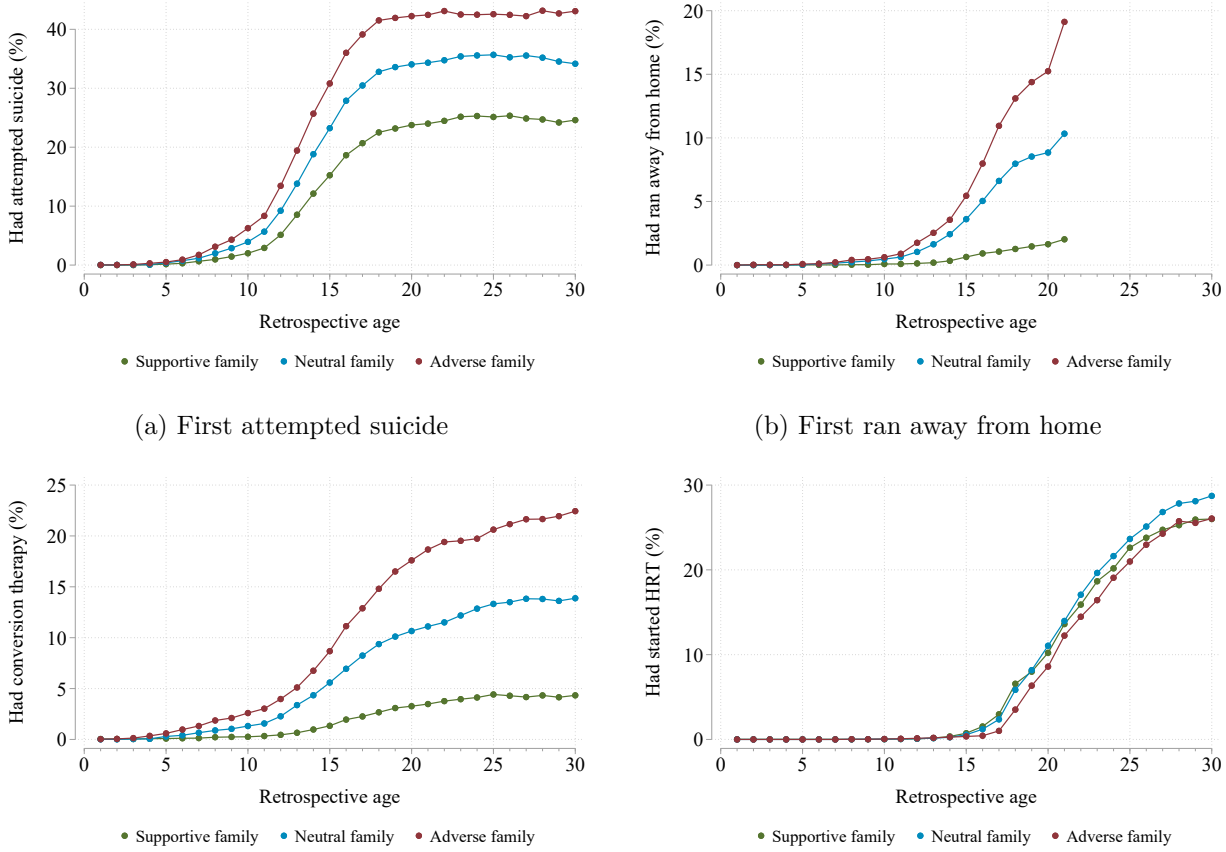
A. Online Appendix – Additional Tables and Figures

Figure A.1: Share of Sample who Reported Life Events Directly Related to Mental Health by Retrospective Age Over an Extended Period of Time.



(a) First attempted suicide

(b) First ran away from home

(c) First exposed to gender identity change efforts

(d) First started hormone replacement therapy (HRT)

Notes: The USTS top codes running away to age 21, meaning all respondents who report running away at age 21 or older are recorded as running away at age 21, which is why the lines spike and end at age 21.

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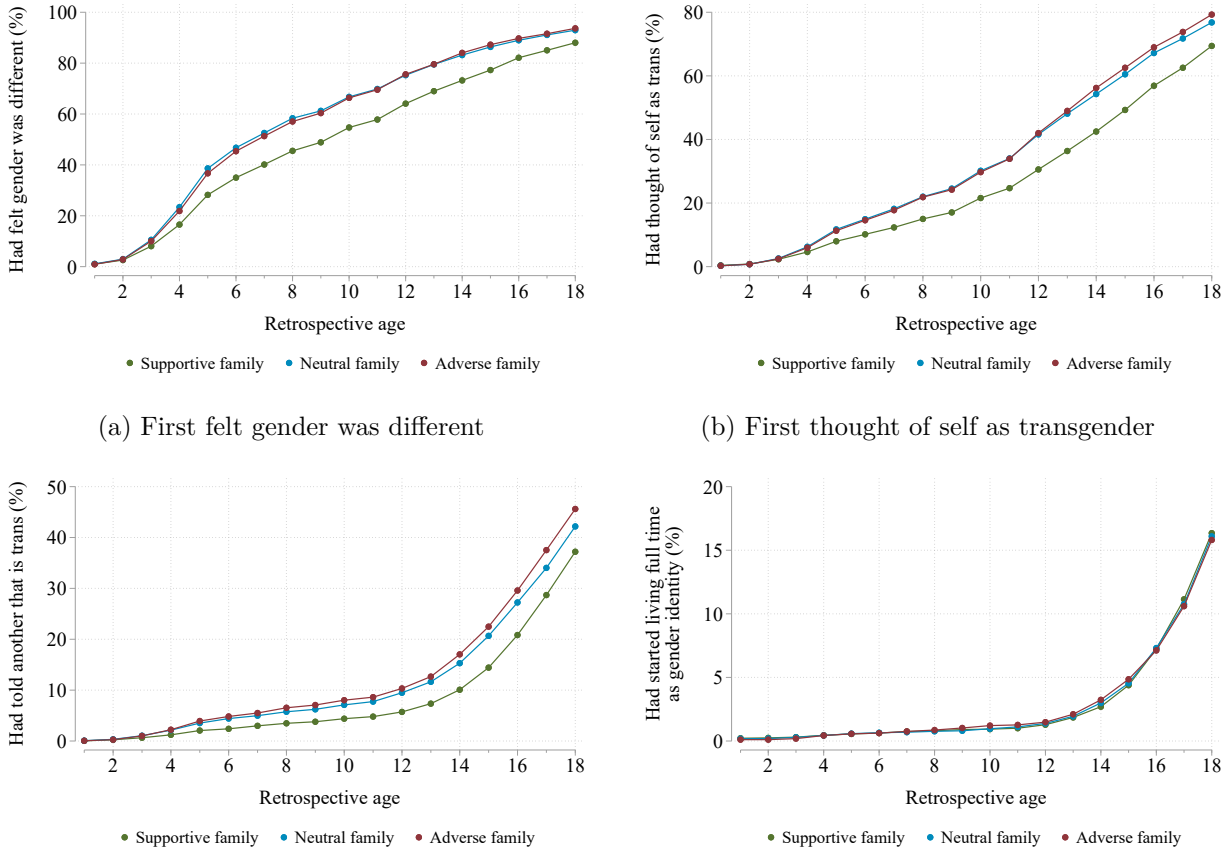
Figure A.2: Share of Sample who Reported Social Transition Life Event by Retrospective Age.



(a) First felt gender was different

(b) First thought of self as transgender

(c) First told someone else that is transgender

(d) Started to live full-time as gender identity

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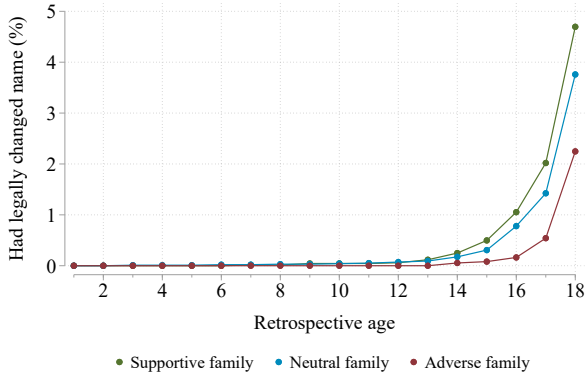
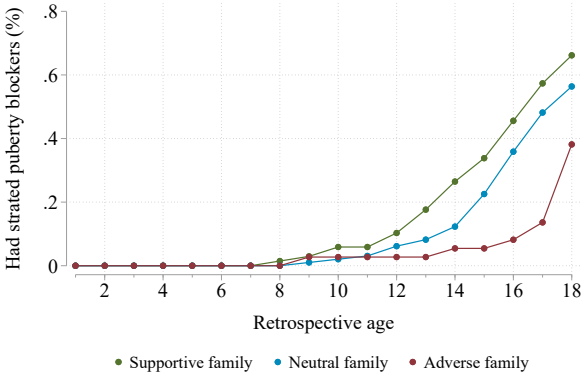
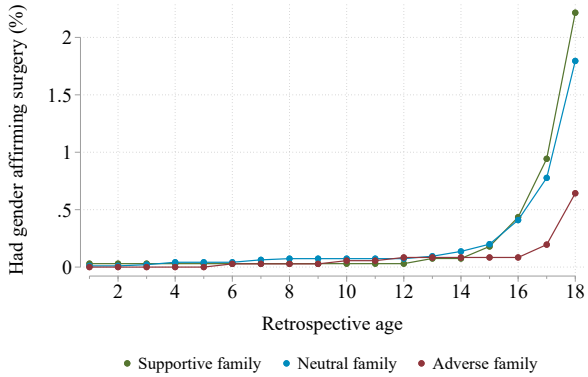
Figure A.3: Share of Sample who Reported Life Events that are Uncommon for Minors by Retrospective Age.



(a) First went to court for legal name change



(b) First started puberty blocking hormones



(c) First had gender affirming surgery

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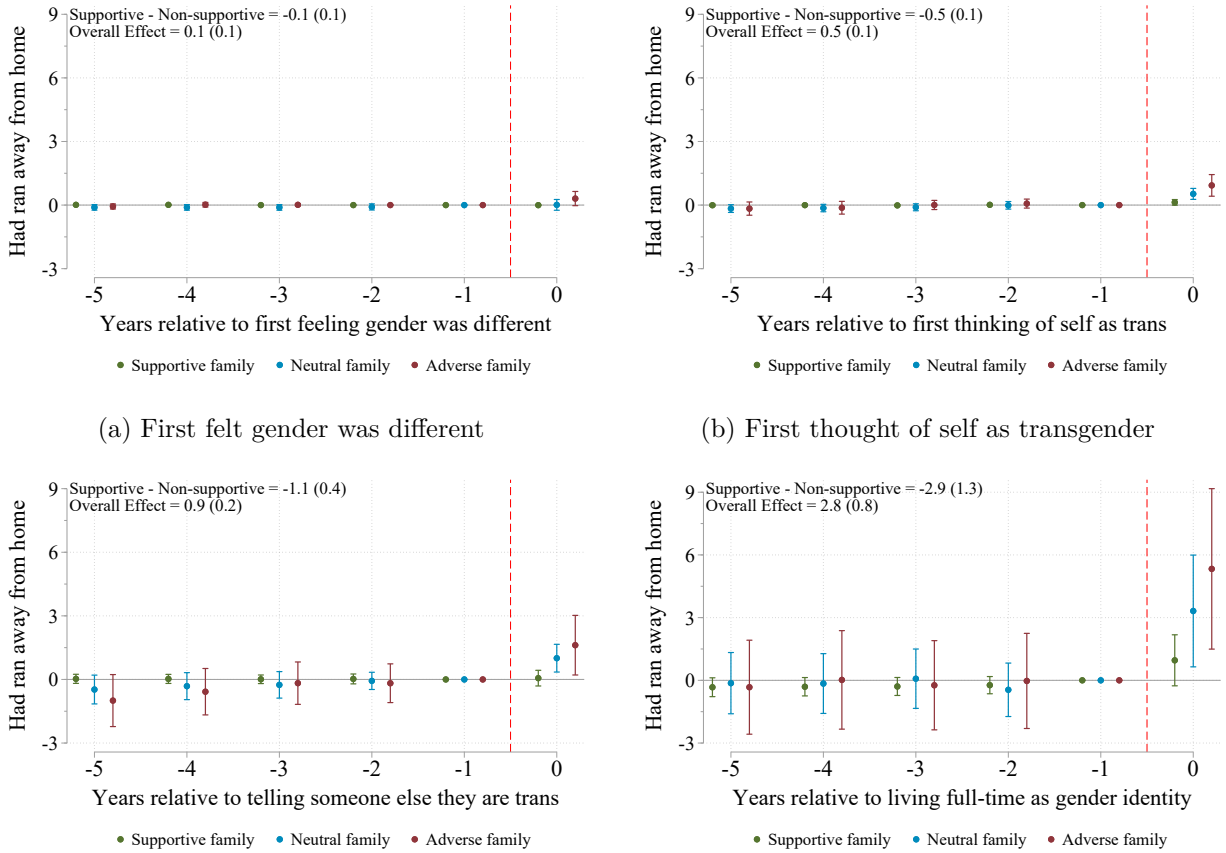
Figure A.4: Event Study Estimates of the Effect of Social Transition Events on the Risk of Running Away for Transgender Youth by Family Support Group.



(a) First felt gender was different

(b) First thought of self as transgender

(c) First told someone else that is transgender

(d) Started to live full-time as gender identity

Notes: The figures show the estimates of the stacked event study model for each family support subgroup. Estimates using only observations in supportive families are depicted in green, neutral families are in blue, and adverse families are in red. For each cohort, the control group includes only respondents who report starting the social transition step one year after the treated group was initiated. The outcome in the regression is a dummy variable for running away (zero before the age of first running away and, if ever, 1 after). All regressions include cohort-individual fixed effects, cohort-age-calendar year fixed effects, cohort-specific controls for each other social transitioning step, and are weighted by synthetic unit weights. The shaded area in each figure is the 95% confidence interval based on robust standard errors clustered by individual. The estimate for "Supportive - Non-supportive" provides the difference between the supportive family group and a weighted average of the neutral and adverse family groups, where the weights correspond to the sample shares. The estimate for the "Overall Effect" is a weighted average of the three family support groups, where the weights correspond to the sample shares. The standard error for these two estimates are provided in the parenthesis.

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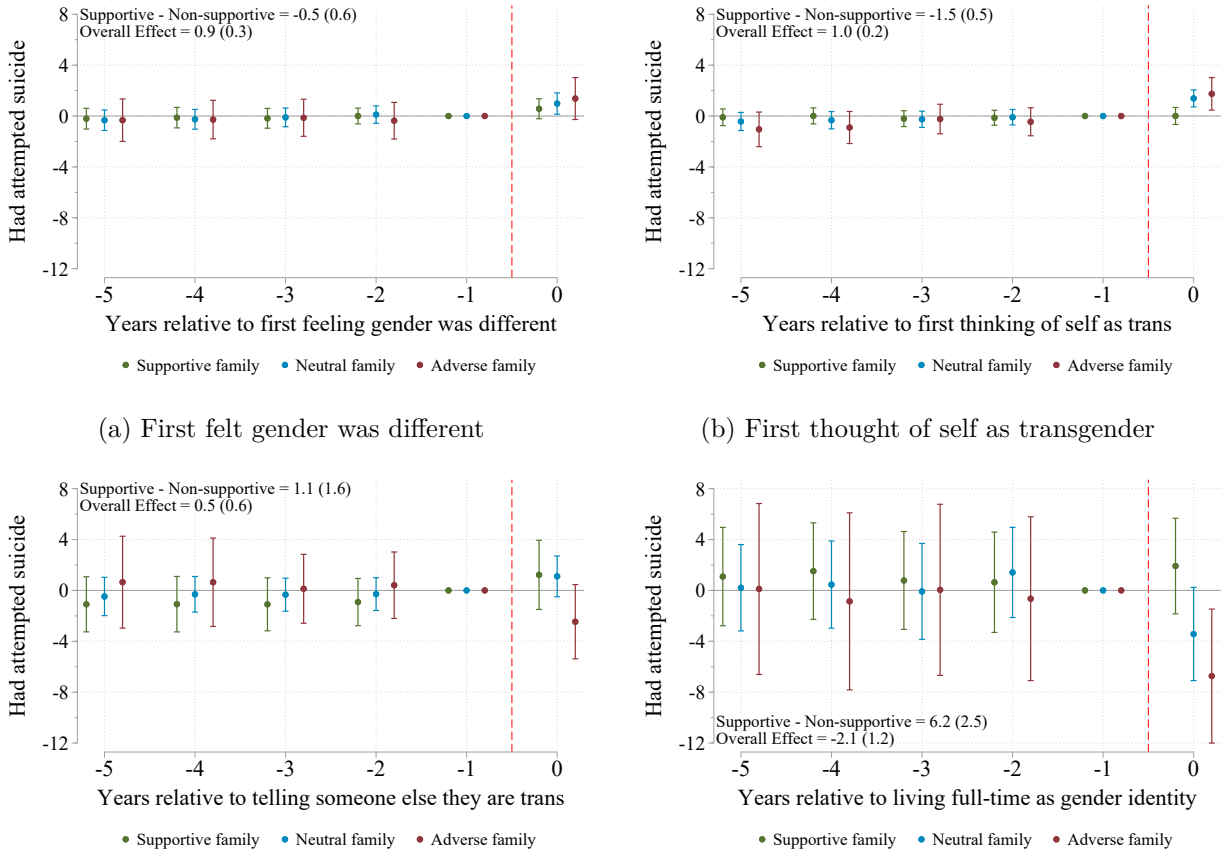
Figure A.5: Event Study Estimates of the Effect of Social Transition Events on the Risk of Attempting Suicide for Transgender Youth by Family Support Group.



(a) First felt gender was different

(b) First thought of self as transgender

(c) First told someone else that is transgender

(d) Started to live full-time as gender identity

Notes: The figures show the estimates of the stacked event study model for each family support subgroup. Estimates using only observations in supportive families are depicted in green, neutral families are in blue, and adverse families are in red. For each cohort, the control group includes only respondents who report starting the social transition step one year after the treated group was initiated. The outcome in the regression is a dummy variable for attempting suicide (zero before the age of first attempting suicide and, if ever, 1 after). All regressions include cohort-individual fixed effects, cohort-age-calendar year fixed effects, and cohort-specific controls for each other social transitioning step, and are weighted by synthetic unit weights. The shaded area in each figure is the 95% confidence interval based on robust standard errors clustered by individual. The estimate for "Supportive - Non-supportive" provides the difference between the supportive family group and a weighted average of the neutral and adverse family groups, where the weights correspond to the sample shares. The estimate for the "Overall Effect" is a weighted average of the three family support groups, where the weights correspond to the sample shares. The standard error for these two estimates are provided in the parenthesis.

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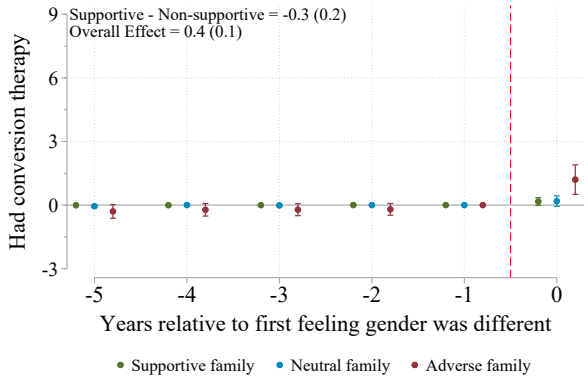
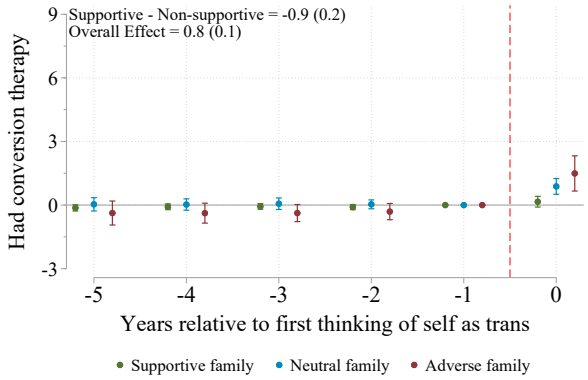
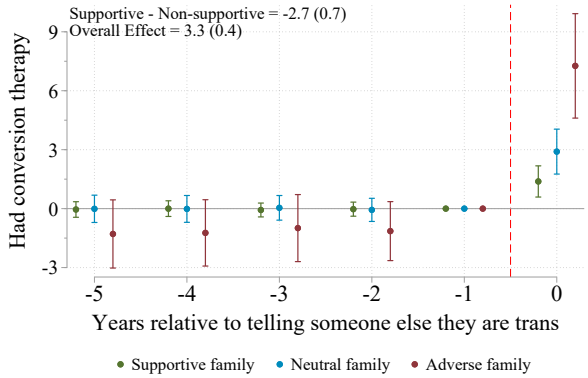
Figure A.6: Event Study Estimates of the Effect of Social Transition Events on Starting Gender Identity Change Efforts for Transgender Youth by Family Support Group.



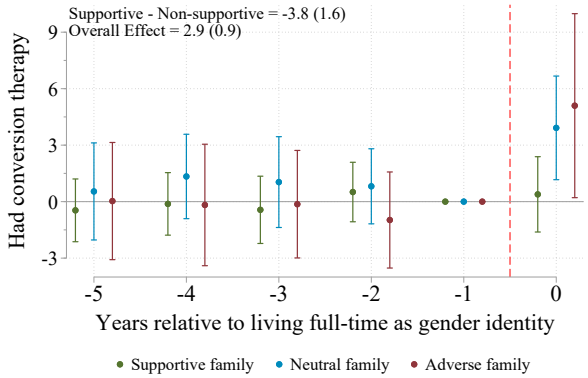
(a) First felt gender was different



(b) First thought of self as transgender



(c) First told someone else that is transgender



(d) Started to live full-time as gender identity

Notes: The figures show the estimates of the stacked event study model for each family support subgroup. Estimates using only observations in supportive families are depicted in green, neutral families are in blue, and adverse families are in red. For each cohort, the control group includes only respondents who report starting the social transition step one year after the treated group was initiated. The outcome in the regression is a dummy variable for ever having gender identity change efforts (zero before the age of first having gender identity change efforts and, if ever, 1 after). All regressions include cohort-individual fixed effects, cohort-age-calendar year fixed effects, cohort-specific controls for each other social transitioning step, and are weighted by synthetic unit weights. The shaded area in each figure is the 95% confidence interval based on robust standard errors clustered by individual. The estimate for "Supportive - Non-supportive" provides the difference between the supportive family group and a weighted average of the neutral and adverse family groups, where the weights correspond to the sample shares. The estimate for the "Overall Effect" is a weighted average of the three family support groups, where the weights correspond to the sample shares. The standard error for these two estimates are provided in the parenthesis.

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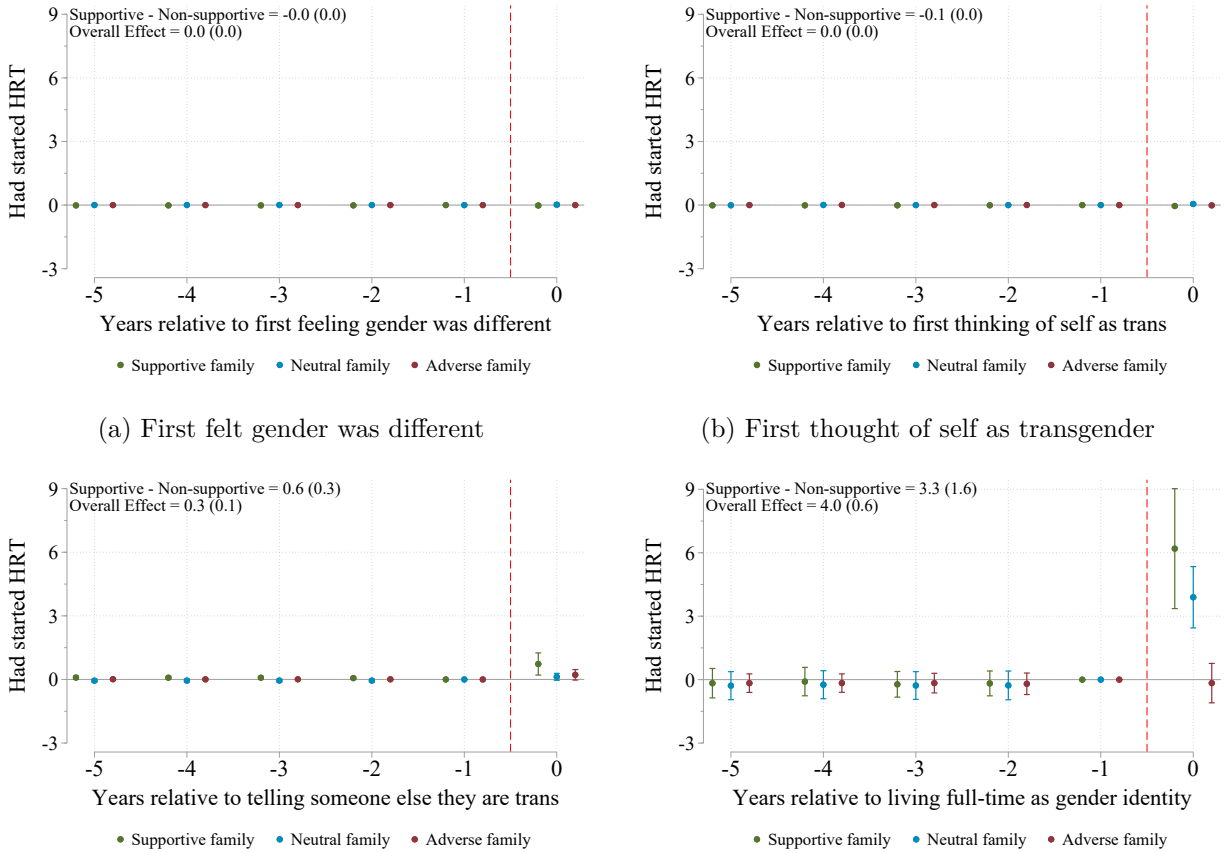
Figure A.7: Event Study Estimates of the Effect of Social Transition Events on Starting Hormone Replacement Therapy (HRT) for Transgender Youth by Family Support Group.



(a) First felt gender was different

(b) First thought of self as transgender

(c) First told someone else that is transgender

(d) Started to live full-time as gender identity

Notes: The figures show the estimates of the stacked event study model for each family support subgroup. Estimates using only observations in supportive families are depicted in green, neutral families are in blue, and adverse families are in red. For each cohort, the control group includes only respondents who report starting the social transition step one year after the treated group was initiated. The outcome in the regression is a dummy variable for gender-affirming hormone therapy (zero before the age of first starting hormone therapy and, if ever, 1 after). All regressions include cohort-individual fixed effects, cohort-age-calendar year fixed effects, cohort-specific controls for each other social transitioning step, and are weighted by synthetic unit weights. The shaded area in each figure is the 95% confidence interval based on robust standard errors clustered by individual. The estimate for "Supportive - Non-supportive" provides the difference between the supportive family group and a weighted average of the neutral and adverse family groups, where the weights correspond to the sample shares. The estimate for the "Overall Effect" is a weighted average of the three family support groups, where the weights correspond to the sample shares. The standard error for these two estimates are provided in the parenthesis.

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Table A.1: Impact of Social Transition Events on Running Away

	(1)	(2)	(3)	(4)	(5)
Group:	Supporitve family	Neutral family	Adverse family	Overall	Difference
Panel A					
Felt gender was different	0.0	0.0	0.3	0.1	−0.1
	(0.0)	(0.1)	(0.2)	(0.1)	(0.1)
Pre-treatment average outcome	0.0	0.1	0.1	0.0	
Treated individuals	5,245	7,881	3,004	16,130	
Sample size	56,695	80,347	31,064	168,106	
Panel B					
Thought of self as trans	0.1	0.5***	0.9***	0.5***	−0.5***
	(0.1)	(0.1)	(0.3)	(0.1)	(0.1)
Pre-treatment average outcome	0.0	0.4	0.6	0.3	
Treated individuals	4,112	6,773	2,637	13,522	
Sample size	50,060	79,434	31,103	160,597	
Panel C					
Told others that was trans	0.1	1.0**	1.6*	0.9***	−1.1**
	(0.2)	(0.3)	(0.7)	(0.2)	(0.4)
Pre-treatment average outcome	0.4	2.3	3.3	1.9	
Treated individuals	1,699	3,141	1,131	5,971	
Sample size	23,626	41,279	15,114	80,019	
Panel D					
Full time as gender identity	1.0	3.3*	5.3**	2.8***	−2.9*
	(0.6)	(1.4)	(2.0)	(0.8)	(1.3)
Pre-treatment average outcome	0.9	5.9	7.6	4.4	
Treated individuals	676	946	315	1,937	
Sample size	10,014	14,334	4,686	29,034	
Cohort-individual fixed effects	✓	✓	✓	✓	✓
Cohort-age-year fixed effects	✓	✓	✓	✓	✓
Social transition controls	✓	✓	✓	✓	✓

*Notes: *p<0.05,**p<0.01,***p<0.001.* This table reports the baseline event study estimates for the impact of social transition steps on running away from home by family support group. A separate cohort is defined for every combination of age and calendar year of first exposure. The event window includes five years before and one year after each cohort's initiation. For each cohort, the control group includes all individuals who initiated one year after the treated group. Cohorts with less than fifty control units are dropped. All regressions include cohort-individual and cohort-age-calendar year fixed effects as well as cohort-specific controls for the other three social transition steps and are weighted by synthetic unit weights. Robust standard errors are clustered by individual and reported in parenthesis.

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Table A.2: Impact of Social Transition Events on Attempting Suicide

	(1)	(2)	(3)	(4)	(5)
Group:	Supporitve family	Neutral family	Adverse family	Overall	Difference
Panel A					
Felt gender was different	0.6	1.0*	1.4	0.9**	−0.5
	(0.4)	(0.4)	(0.8)	(0.3)	(0.6)
Pre-treatment average outcome	3.3	3.3	4.2	3.5	
Treated individuals	5,225	7,841	2,989	16,055	
Sample size	56,505	79,979	30,921	167,405	
Panel B					
Thought of self as trans	0.0	1.4***	1.7**	1.0***	−1.5**
	(0.3)	(0.3)	(0.7)	(0.2)	(0.5)
Pre-treatment average outcome	7.5	9.2	11.7	9.2	
Treated individuals	4,092	6,737	2,619	13,448	
Sample size	49,821	79,023	30,878	159,722	
Panel C					
Told others that was trans	1.2	1.1	−2.5	0.5	1.1
	(1.4)	(0.8)	(1.5)	(0.6)	(1.6)
Pre-treatment average outcome	18.4	23.4	35.6	24.2	
Treated individuals	1,688	3,122	1,120	5,930	
Sample size	23,496	41,037	14,982	79,515	
Panel D					
Full time as gender identity	1.9	−3.4	−6.7*	−2.1	6.2*
	(1.9)	(1.9)	(2.7)	(1.2)	(2.5)
Pre-treatment average outcome	25.5	41.5	55.0	38.1	
Treated individuals	670	942	313	1,925	
Sample size	9,948	14,256	4,644	28,848	
Cohort-individual fixed effects	✓	✓	✓	✓	✓
Cohort-age-year fixed effects	✓	✓	✓	✓	✓
Social transition controls	✓	✓	✓	✓	✓

*Notes: *p<0.05,**p<0.01,***p<0.001.* This table reports the baseline event study estimates for the impact of social transition steps on attempting suicide by family support group. A separate cohort is defined for every combination of age and calendar year of first exposure. The event window includes five years before and one year after each cohort's initiation. For each cohort, the control group includes all individuals who initiated one year after the treated group. Cohorts with less than fifty control units are dropped. All regressions include cohort-individual and cohort-age-calendar year fixed effects as well as cohort-specific controls for the other three social transition steps and are weighted by synthetic unit weights. Robust standard errors are clustered by individual and reported in parenthesis.

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Table A.3: Impact of Social Transition Events on Gender Identity Change Efforts

	(1)	(2)	(3)	(4)	(5)
Group:	Supporitve family	Neutral family	Adverse family	Overall	Difference
Panel A					
Felt gender was different	0.2	0.2	1.2***	0.4***	−0.3
	(0.1)	(0.1)	(0.4)	(0.1)	(0.2)
Pre-treatment average outcome	0.1	0.1	0.1	0.1	
Treated individuals	5,236	7,857	2,996	16,089	
Sample size	56,586	80,115	30,987	167,688	
Panel B					
Thought of self as trans	0.2	0.9***	1.5***	0.8***	−0.9***
	(0.1)	(0.2)	(0.4)	(0.1)	(0.2)
Pre-treatment average outcome	0.4	1.3	1.8	1.1	
Treated individuals	4,104	6,751	2,628	13,483	
Sample size	49,960	79,208	31,008	160,176	
Panel C					
Told others that was trans	1.4***	2.9***	7.3***	3.3***	−2.7***
	(0.4)	(0.6)	(1.4)	(0.4)	(0.7)
Pre-treatment average outcome	1.1	4.2	6.8	3.8	
Treated individuals	1,697	3,130	1,125	5,952	
Sample size	23,598	41,154	15,054	79,806	
Panel D					
Full time as gender identity	0.4	3.9**	5.1*	2.9***	−3.8*
	(1.0)	(1.4)	(2.5)	(0.9)	(1.6)
Pre-treatment average outcome	3.9	10.3	10.8	8.1	
Treated individuals	674	940	314	1,928	
Sample size	9,996	14,250	4,674	28,920	
Cohort-individual fixed effects	✓	✓	✓	✓	✓
Cohort-age-year fixed effects	✓	✓	✓	✓	✓
Social transition controls	✓	✓	✓	✓	✓

*Notes: *p<0.05,**p<0.01,***p<0.001.* This table reports the baseline event study estimates for the impact of social transition steps on gender identity change efforts by family support group. A separate cohort is defined for every combination of age and calendar year of first exposure. The event window includes five years before and one year after each cohort's initiation. For each cohort, the control group includes all individuals who initiated one year after the treated group. Cohorts with less than fifty control units are dropped. All regressions include cohort-individual and cohort-age-calendar year fixed effects as well as cohort-specific controls for the other three social transition steps and are weighted by synthetic unit weights. Robust standard errors are clustered by individual and reported in parenthesis.

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Table A.4: Impact of Social Transition Events on Hormone Replacement Therapy

	(1)	(2)	(3)	(4)	(5)
Group:	Supporitve family	Neutral family	Adverse family	Overall	Difference
Panel A					
Felt gender was different	0.0	0.0	0.0	0.0	0.0
	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Pre-treatment average outcome	0.0	0.0	0.0	0.0	
Treated individuals	5,200	7,822	2,970	15,992	
Sample size	56,245	79,762	30,698	166,705	
Panel B					
Thought of self as trans	0.0	0.1	0.0	0.0	-0.1^{*}
	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Pre-treatment average outcome	0.0	0.0	0.0	0.0	
Treated individuals	4,072	6,721	2,602	13,395	
Sample size	49,578	78,857	30,695	159,130	
Panel C					
Told others that was trans	0.7^{**}	0.1	0.2	0.3^{***}	0.6^{*}
	(0.3)	(0.1)	(0.1)	(0.1)	(0.3)
Pre-treatment average outcome	0.0	0.1	0.0	0.1	
Treated individuals	1,679	3,116	1,119	5,914	
Sample size	23,376	40,960	14,940	79,276	
Panel D					
Full time as gender identity	6.2^{***}	3.9^{***}	-0.2	4.0^{***}	3.3^{*}
	(1.4)	(0.7)	(0.5)	(0.6)	(1.6)
Pre-treatment average outcome	0.9	1.4	0.6	1.1	
Treated individuals	672	935	312	1,919	
Sample size	9,960	14,178	4,632	28,770	
Cohort-individual fixed effects	✓	✓	✓	✓	✓
Cohort-age-year fixed effects	✓	✓	✓	✓	✓
Social transition controls	✓	✓	✓	✓	✓

*Notes: *p<0.05,**p<0.01,***p<0.001.* This table reports the baseline event study estimates for the impact of social transition steps on initiating gender-affirming hormone therapy by family support group. A separate cohort is defined for every combination of age and calendar year of first exposure. The event window includes five years before and one year after each cohort's initiation. For each cohort, the control group includes all individuals who initiated one year after the treated group. Cohorts with less than fifty control units are dropped. All regressions include cohort-individual and cohort-age-calendar year fixed effects as well as cohort-specific controls for the other three social transition steps and are weighted by synthetic unit weights. Robust standard errors are clustered by individual and reported in parenthesis.

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